CLAIMS

1. Method for determining the physico-chemical properties of a three-dimensional body that comprises the following stages:

a) Generating a database (**BDS**) that contains the data on the bores that define the situation and the physico-chemical properties of the three-dimensional body,
b) Defining the surface (**T1**) in the spatial centre of the three-dimensional body by triangulation,
c) Defining on **T1** a cluster of points (**NPS**) generated with regular spacings in the two main directions of the three-dimensional body,
d) Generating, by creating linked triangles between the points of **NPS**, a new surface (**T2**), very similar to **T1** but in the suitable format for interpolation and graphical representation,
e) Calculating, by any interpolation method, the properties of the points of **NPS** from the bore database **BDS**,
f) Generating a new database (**BDT2**) using the triangles of the surface **T2** that contains, for each triangle, the data of the coordinates of the vertices, the results of the interpolation of the vertices and the area of this triangle in space,
g) Generating reports with the desired information from the database **BDT2** and
h) Generating three-dimensional graphical representations from the database **BDT2**.

2. Method according to claim 1, characterised in that the database **BDS** generated in stage a) comprises the following data:

- Data of the (x,y,z) coordinates defining the position of each bore (s1, s2, etc.) in the three-dimensional body (the intersection of the bores with the three-dimensional body), wherein the coordinates can either define a single point determining the centre of the body or an interval determining the beginning and the end of the three-dimensional body,
- Data on the properties of the three-dimensional body (data 1, data 2, etc.) for each bore (s1, s2, etc.).

3. Method according to the previous claims, characterised in that the surface **T1** defined in stage b) is generated by applying the triangulation method based on:

- The coordinates of the centre of the bores,
- The three-dimensional interpretation of the known data of this body,
- The previous knowledge of the usual shape of this type of body.

4. Method according to the previous claims, characterised in that the cluster of points **NPS** defined in stage c) is generated by any algorithm based on regular spacings on the surface.

5. Method according to the previous claims, characterised in that according to stage d) a triangulation algorithm based on the **NPS** is used to generate the surface **T2** .

6. Method according to the previous claims, characterised in that in the interpolation made in stage e) from the bore database **BDS** uses the information of the surrounding bores and the interpolation method used can be the simplest method of giving it the properties of the nearest probe, a power of the inverse of the distance, or any statistical method.

7. Method according to the previous claims, characterised in that the graphical representation generated in stage h) from the database **BDT2** is performed by graphical software that allows the three-dimensional representation of its shape and properties.

8. Method according to the previous claims for determining the mineral resources or reserves of a mineral body or mineral layer that comprises the following stages:

a) Generating a database (**BDS**) that contains the data on the intersections of the bores defining the mineral body or layer, this database comprising:
   - Data of the (x,y,z) coordinates defining the position of each bore (s1, s2, etc.) in the mineral body or layer (the intersection of the bores with the mineral body or layer), wherein the coordinates can either define a single point determining the centre of the body or an interval determining the beginning and the end of the three-dimensional body,

- Data on the properties of the mineral body or layer (data 1, data 2, etc.) for each bore (s1, s2, etc.).

b) Defining the surface in the spatial centre of the mineral body or layer (**T1**) by forming linked triangles between the median points of each bore position (s1, s2, etc.) or intersections; to do so the following steps shall be followed:
   - Using the centres of the intersections of the bores with the mineral layer, the information on any outcrops of the layer and the geological interpretation regarding the spatial location of the layer, a set of points and lines are defined located on the central surface of the mineral body or layer,
   - Using these points and lines, the surface they form is defined by triangulation, providing a set of linked triangles in the space,
   - As many points and lines are added so that the surface generated by triangulation is a faithful representation of the centre of the mineral layer or body and it covers the entire area to be included in the study;

c) Defining on **T1** a cluster of points (**NPS**) generated with regular spacings in the two main directions of the three-dimensional body, for which the following steps are followed:
   - An algorithm is used to fill in the surface **T1** with points that are more or less equidistant to one another,
   - The distance between the points is defined according to the calculation detail required so that its final three-dimensional representation agrees with the initial interpretation of the layer,
   - Depending on the algorithm used, the real distance between the points is not necessarily always the same;

d) Generating, by forming linked triangles between the points **NPS**, a new surface (**T2**) that will be very similar to **T1** but has the suitable format for interpolation and graphical representation, for which a triangulation algorithm shall be used on this cluster of points,

e) Calculating, by any interpolation method, the properties of the points **NPS** from the bore database **BDS**,
   - When interpolating, for each point of **NPS** the properties of the three-dimensional body at this point are calculated using the information on the intersections of the surrounding bores,

- The interpolation can be by the simplest method of giving it the properties of the nearest intersection, a power of the inverse of the distance, or geostatistical methods such as Kriging or others,

f) Generating a new database (**BDT2**), from the triangles of the surface **T2**, which contains, for each triangle, the data of the coordinates of the vertices, the results of the interpolation of the vertices and the area of this triangle in space,

g) Generating reports with the desired information using the database **BDT2**.

h) Generating a three-dimensional graphical representation from the database **BDT2** by graphics software that allows a three-dimensional representation.